Climate-related risks: A financial stability angle for Europe

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What the presentation does and why it matters

• Overview of (i) development of green finance, (ii) climate financial risk exposure and (iii) results of ECB’s climate stress test

• Main take home messages:
  • Heterogenous green finance path by contract (green loans vs bonds vs ESG) + greenwashing risk (e.g., ESG sl. 8)
  • Heterogeneous exposure of banks to physical risks by country: data, scenarios and disaster risk assessment affect results (e.g., floods, sl. 11; GDP losses, sl. 20)
  • Transition risks not just across, but also within sectors
  • The short-term costs of climate transition policies pale in comparison to the costs of unfettered climate change in the medium to long term.

• Risk assessment is key for capital reallocation from high to low-carbon investments in order to achieve climate mitigation (and adaptation) targets.
Challenges and opportunities

• **Carbon risk and greenwashing** (see e.g. ESMA 2022):
  • Analysis of transition risk focused on emissions and carbon pricing:
    • Limits: utility firm can decrease its Scope 1 by expanding in trade - no decarbonization
  • Add **tech profile** to provide a comprehensive picture of firms’ exposure to transition risk
  • Climate Policy Relevant Sectors (Battiston ea 2017): classification of activities by transition risk, translated into **Transition Exposure, Taxonomy Aligned Coefficients** (Alessi ea 2021)

• **Scenarios for climate stress test:**
  • Current scenarios neglect the role of finance and «climate sentiments» (Dunz ea. 2021).
  • When accounting for finance, trajectories of orderly/disorderly transitions differ greatly: important implications for decision makers! (Battiston ea 2021)
  • **Risk metrics highly sensitive to probability of disorderly scenarios:** include broad range of scenarios to avoid underestimating risk! (Battiston & Monasterolo 2020)

• **Data**: need accessible **extrafinancial, plant based info** (e.g. revenues shares) and **database models** to connect financial/extrafinancial info
**Accounting for finance is key for climate mitigation**

**Endogenizing orderly/disorderly transition:**
- An immediate transition to 2°C classified in NGFS scenarios as orderly. But in hampering case: delayed transition, large and sudden financial value adjustments as in a disorderly scenario.

- **Delayed** transition to 2°C: disorderly. But in enabling case gradual price adjustments more consistent with orderly

- In **hampering** role: disorderly transition could also lead to higher risk than in NGFS disorderly

**Legend:**
- Trajectories from IAM scenarios
  - Renewable energy: solid green line
  - Coal: dashed red line
- Trajectories from IAM-CFR framework
  - Renewable energy: solid blue line
  - Coal: dashed black line
Double materiality of climate financial risks

- Analysis of feedback from climate financial risk assessment (e.g. ∆cost of capital) into investment decisions (high/low-carbon) and feasibility of climate scenarios
- Analysing this feedback, in turn, requires macroeconomic models to embed finance and investors’ sentiments.
- Recent example with dynamic balance sheet adjustment in Gourdel ea (2021), forth. ECB working paper.
The importance of **climate sentiments** in the low-carbon transition of the Euro Area

**Fig a:** GHG emissions across NGFS scenarios, Euro Area.

**Fig b:** GHG emissions reduction of orderly transition scenarios conditioned to firms' sentiments (carbon price anticipation across NGFS scenarios), Euro Area.

Source: Gourdel et al. (2021)
**Compound climate risks**

- Climate (physical, transition) risks don’t happen in isolation but can compound with other shocks e.g. COVID-19 and debt crises (Dunz ea 2021, Ranger ea 2021)

- When risks compound, macroeconomic and financial shocks amplify increasing the complexity of policy response and financial risk management (Dunz ea 2021)

- Banks' balance sheets and ability to lend are negatively affected, making government spending less effective.

**Compound risk indicator:** x-axis: simulation until 2024 on annual basis. y-axis: value of compound risk indicator indexed against the sum of the singular event scenarios of hurricane only and COVID-19 only, at 100. Dunz ea (2021)

**Sensitivity analysis** (5 years after the compound shock). y-axis: percentage of additional government spending (G). x-axis: min. required CAR constraining banks' lending. z-axis: impact on real GDP. Dunz ea (2021)
Conclusion

• Doing climate financial risk exposure and climate stress test is crucial to inform decision making (investors, financial supervisors, etc). European financial supervisors moved fast to meet new challenge

• Being aware and embrace the **methodological challenges** is fundamental to **avoid the underestimation of risks and opportunites**

• This requires a throughout understanding of **issues at stake** with:
  • Data
  • Metrics of exposure
  • Use of scenarios
  • Use of macroeconomic models
  • Financial valuation models

• Battiston S. Monasterolo, I., Riahi, K., and van Ruijven, B. (2021). Accounting for finance is key for climate mitigation pathways. Science, 372(6545), 918-920. DOI: 10.1126/science.abf3877


